



MJ2412 Renewable Energy Technology, Advanced Course 6.0 credits

Förnybar energi, fortsättningskurs

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

Course syllabus for MJ2412 valid from Autumn 2007

Grading scale

A, B, C, D, E, FX, F

Education cycle

Second cycle

Main field of study

Specific prerequisites

Renewable Energy Technology, MJ2411 or equivalent

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

This course aims to provide an insight in three of the renewable energies that were explained briefly in the renewable energy technology basic course (MJ2411): wind energy, solar energy and biomass. These renewable energies are seen as important players in the energy future following the compromises from different countries to reduce the emission of greenhouse gases.

At the end of the course, the students should be able to analyze and design energy systems to supply the electricity/heat/cooling requirements using wind energy, bioenergy and/or solar energy.

After completion of the course, students will be able to:

- Describe in detail the fundamentals and main characteristics of wind energy, bioenergy and solar energy and their differences compared to fossil fuels.
- Describe in detail the main components of these 3 different renewable energy systems
- Explain the technological basis for harnessing these renewable energy sources
- Recognize the effects that current energy systems based on fossil fuels have over the environment and the society
- Compare different renewable energy technologies and choose the most appropriate based on local conditions
- Design and dimension technological solutions based on wind energy, bioenergy or solar energy that meet specific energy demands, are economically feasible and have a minimal impact on the environment

Course contents

1. Solar Energy
2. Wind Energy
3. Biomass

Course literature

Handouts

Additional course literature (no purchase required): Gasch, R., Twele, J.; 2001 "Wind Power Plants". James & James Science Publishers Ltd., UK / Solarpraxis AG, Germany. ISBN 1902916387 (UK) / 3934595235 (DE)

Klass, D.; 1998 "Biomass Renewable Energy, Fuels, and Chemicals". Cloth. Academic P, UK. ISBN 0124109500.

Examination

- **TEN1** - Examination, 4.5 credits, grading scale: A, B, C, D, E, FX, F
- **LAB1** - Laboratory Work, 1.5 credits, grading scale: P, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

Other requirements for final grade

Exam (TEN1; 4,5 credits) Grading A/F
Project (PRO1; 1,5 credits). Grading P/F

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.